

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: John J. Guarnicello Examiner #: J. Guarnicello Date: 1/14/2004  
Art Unit: 1771 Phone Number 30 272-1476 Serial Number: 09/28/089  
Mail Box and Bldg/Room Location: Rensselaer 568 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

*See attached claims  
search requested by  
SPE for possible follow-up.  
a due case: Please Expedite!*

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## STAFF USE ONLY

### Type of Search

### Vendors and cost where applicable

Searcher: _____	NA Sequence (#) _____	STN _____
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Date Searcher Picked Up: _____	Bibliographic _____	Dr.Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
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Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

09/281089

=> file caplus  
COST IN U.S. DOLLARS  
FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
0.63	0.63

FILE 'CAPLUS' ENTERED AT 06:01:59 ON 21 JAN 2004  
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FILE COVERS 1907 - 21 Jan 2004 VOL 140 ISS 4  
FILE LAST UPDATED: 20 Jan 2004 (20040120/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s textile  
75943 TEXTILE  
97885 TEXTILES  
L1 128127 TEXTILE  
(TEXTILE OR TEXTILES)

=> s(iron oxide hydroxide or ferric hydroxide oxide or hydrated ferric oxide or goethite or lepidocrocite or limonite)  
S(IRON IS NOT A RECOGNIZED COMMAND  
The previous command name entered was not recognized by the system.  
For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=>).

=> s iron(l)oxide(l)hydroxide  
871747 IRON  
10990 IRONS  
872511 IRON  
(IRON OR IRONS)  
1442415 OXIDE  
315845 OXIDES  
1534995 OXIDE  
(OXIDE OR OXIDES)  
238454 HYDROXIDE  
41334 HYDROXIDES  
258965 HYDROXIDE  
(HYDROXIDE OR HYDROXIDES)  
L2 6084 IRON (L) OXIDE (L) HYDROXIDE

=> s ((iron(l)oxide(l)hydroxide or ferric(l)hydroxide(l)oxide or hydrated(l)ferric(l)oxide))  
871747 IRON  
10990 IRONS  
872511 IRON  
(IRON OR IRONS)  
1442415 OXIDE  
315845 OXIDES  
1534995 OXIDE

(OXIDE OR OXIDES)  
 238454 HYDROXIDE  
 41334 HYDROXIDES  
 258965 HYDROXIDE  
 (HYDROXIDE OR HYDROXIDES)  
 6084 IRON(L) OXIDE(L) HYDROXIDE  
 67319 FERRIC  
 1 FERRICS  
 67320 FERRIC  
 (FERRIC OR FERRICS)  
 238454 HYDROXIDE  
 41334 HYDROXIDES  
 258965 HYDROXIDE  
 (HYDROXIDE OR HYDROXIDES)  
 1442415 OXIDE  
 315845 OXIDES  
 1534995 OXIDE  
 (OXIDE OR OXIDES)  
 1339 FERRIC(L) HYDROXIDE(L) OXIDE  
 56502 HYDRATED  
 1 HYDRATEDS  
 56503 HYDRATED  
 (HYDRATED OR HYDRATEDS)  
 67319 FERRIC  
 1 FERRICS  
 67320 FERRIC  
 (FERRIC OR FERRICS)  
 1442415 OXIDE  
 315845 OXIDES  
 1534995 OXIDE  
 (OXIDE OR OXIDES)  
 407 HYDRATED(L) FERRIC(L) OXIDE  
 L3 7038 ((IRON(L) OXIDE(L) HYDROXIDE OR FERRIC(L) HYDROXIDE(L) OXIDE OR  
 HYDRATED(L) FERRIC(L) OXIDE))  
  
 => s goethite or lepidocrocite or limonite  
 8626 GOETHITE  
 261 GOETHITES  
 8646 GOETHITE  
 (GOETHITE OR GOETHITES)  
 1323 LEPIDOCROCITE  
 24 LEPIDOCROCITES  
 1326 LEPIDOCROCITE  
 (LEPIDOCROCITE OR LEPIDOCROCITES)  
 3772 LIMONITE  
 187 LIMONITES  
 3839 LIMONITE  
 (LIMONITE OR LIMONITES)  
 L4 12464 GOETHITE OR LEPIDOCROCITE OR LIMONITE  
  
 => s aluminum(l)oxide(l)hydroxide  
 818627 ALUMINUM  
 292 ALUMINUMS  
 818687 ALUMINUM  
 (ALUMINUM OR ALUMINUMS)  
 1442415 OXIDE  
 315845 OXIDES  
 1534995 OXIDE  
 (OXIDE OR OXIDES)  
 238454 HYDROXIDE  
 41334 HYDROXIDES  
 258965 HYDROXIDE  
 (HYDROXIDE OR HYDROXIDES)  
 L5 4537 ALUMINUM(L) OXIDE(L) HYDROXIDE

=> d his

(FILE 'HOME' ENTERED AT 06:00:23 ON 21 JAN 2004)

FILE 'CAPLUS' ENTERED AT 06:01:59 ON 21 JAN 2004

L1 128127 S TEXTILE  
L2 6084 S IRON(L)OXIDE(L)HYDROXIDE  
L3 7038 S ((IRON(L)OXIDE(L)HYDROXIDE OR FERRIC(L)HYDROXIDE(L)OXIDE OR H  
L4 12464 S GOETHITE OR LEPIDOCROCITE OR LIMONITE  
L5 4537 S ALUMINUM(L)OXIDE(L)HYDROXIDE

=> s l1 and l3 and l4 and l5

L6 1 L1 AND L3 AND L4 AND L5

=> d l6 bib,abs

L6 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:467977 CAPLUS  
DN 131:103477  
TI Textile surface coatings of iron oxide and aluminum oxide  
IN Kuhn, Hans H.; Kang, Peter K.  
PA Milliken & Co., USA  
SO U.S., 8 pp.  
CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5928720	A	19990727	US 1998-7687	19980115
PRAI	US 1998-7687		19980115		

AB A method of coating a **textile** substrate comprises (a) contacting a **textile** substrate with an aq. soln. of a ferrous or **ferric** salt and salt of Al at pH .apprx.2.5 or greater, wherein the aq. soln. optionally comprises a compd. which produces ammonia by hydrolysis in aq. soln., a buffering and pH controlling system, and a dispersing agent; (b) heating the soln. to .apprx.50.degree. to .apprx.100.degree.; (c) hydrolyzing and oxidizing the ferrous ion, or hydrolyzing the **ferric** ion, to form an **iron (III) oxide hydroxide** and hydrolyzing the Al ion to form an **aluminum oxide hydroxide**, nucleating the **iron (III) oxide hydroxide** and **aluminum oxide hydroxide** in situ at the surface of the substrate, wherein the **oxide hydroxides** are present as particles which are sub-colloidal in size, thereby forming a substantially amorphous coherent **iron (III) oxide hydroxide/aluminum oxide hydroxide** coating on the substrate surface; wherein the resultant rates of adsorption onto the substrate surface of the **oxide hydroxides** are greater than the resultant rates of formation of the same **oxide hydroxides**. The obtained substrate has very good color fastness, bacteriostatic, and virus removing properties and can be utilized as an water filtration article. Thus, a coating on a polyester fabric was prepd. from a soln. contg. Mohr's salt 15, Al2(SO4)3.cntdot.18H2O 3.75, urea 10, formic acid 2.5, ammonium formate 2.64, and Rhodacal BX-78 1.2 g at pH .apprx.3.1.

RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> log y

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

41.43

42.06

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

CA SUBSCRIBER PRICE

ENTRY

SESSION

-0.69

-0.69

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slightly sol in hot water. Practically insol in acetone, petr ether, ether, chloroform.

**3969. Ferric Hydroxide.** *Ferric hydroxide oxide*; hydrated ferric oxide.  $\text{Fe}(\text{OH})_3$ ; mol wt 88.86. Fe 62.85%, H 1.13%, O 36.01%.  $\text{FeO}(\text{OH})$ . Occurs in nature as the minerals *goethite* [ $\alpha\text{-FeO}(\text{OH})$ ], *lepidocrocite* [ $\gamma\text{-FeO}(\text{OH})$ ], and *limonite* [ $\text{FeO}(\text{OH}) \cdot n\text{H}_2\text{O}$ ]. Other known allomorphic forms:  $\beta\text{-FeO}(\text{OH})$ ;  $\delta\text{-FeO}(\text{OH})$ . The hydroxide  $\text{Fe}(\text{OH})_3$  is not known. Prepn: Lux in *Handbook of Preparative Inorganic Chemistry*, vol 2, G. Brauer, Ed. (Academic Press, New York, 2nd ed., 1965) p 1499. Crystal structure of  $\alpha\text{-FeO}(\text{OH})$ : Sampson, *Acta Cryst.* 25B, 1683 (1969). Review: Bernal *et al.*, *Clay Miner. Bull.* 4, 15-30 (1959).

Red to brown powder or crystals. Loses  $\text{H}_2\text{O}$  to form  $\text{Fe}_2\text{O}_3$ . d 3.4-3.9. Practically insol in water, alcohol; sol in mineral acids.

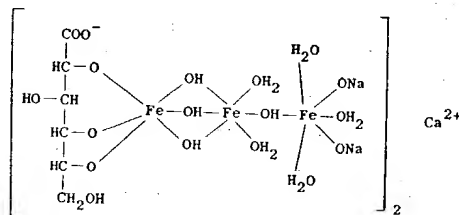
USE: In purifying water; as absorbent in chemical processing; as pigment; as catalyst.

**3970. Ferric Hypophosphite.**  $\text{FeH}_2\text{O}_2\text{P}_3$ ; mol wt 250.83. Fe 22.27%, H 2.41%, O 38.27%, P 37.05%.  $\text{Fe}(\text{H}_2\text{PO}_2)_3$ . Prepn: U.S.D. 25th ed, p 573.

White or grayish-white powder. Odorless, tasteless. Sol in 2300 parts cold water, 1200 parts boiling water; more sol in water in presence of  $\text{H}_3\text{PO}_2$ ; sol in warm concd solns of alkali citrates. Protect from light. Should not be heated or triturated with chlorates, nitrates, or other oxidizing agents.

USE: Formerly as dietary supplement for phosphorus.

**3971. Ferric Calcium Sodium. Pentaqua[ $\text{D}$ -gluconato(4-)-O',O'',O''']tetra- $\mu$ -hydroxydioxotriferrate(3-)] calcium sodium (2:1:4); monocalcium tetrasodium bis[pentaqua-tetra- $\mu$ -hydroxy[ $\text{D}$ -gluconato(4-)]dioxotriferrate(3-)].** Kelfer.  $\text{C}_{12}\text{H}_{14}\text{CaFe}_3\text{Na}_4\text{O}_{56}$ ; mol wt 1231.62. C 11.70%, H 3.60%, Ca 3.25%, Fe 27.21%, Na 7.47%, O 46.77%.



THERAP CAT: Hematinic.

**3972. Ferric Nitrate.**  $\text{Fe}(\text{NO}_3)_3$ ; mol wt 241.87. Fe 23.09%, N 17.37%, O 59.54%.  $\text{Fe}(\text{NO}_3)_3$ . Prepn: *Gmelin's Iron* (8th ed.) 59, part B, 161-172 (1932).

Nonahydrate, pale-violet to grayish-white, somewhat deliquescent crystals. mp 47°. Dec below 100°. d<sub>20</sub> 1.68. Freely sol in water, alcohol, acetone; slightly sol in cold concd  $\text{HNO}_3$ . LD<sub>50</sub> orally in rats: 3.25 g/kg. H. F. Smyth *et al.*, *Am. Ind. Hyg. Assoc. J.* 30, 470 (1969).

USE: As mordant in dyeing, weighting silks, tanning; as reagent in analytical chemistry; as corrosion inhibitor.

**3973. Ferric Oxide.** Ferric sesquioxide; jeweler's rouge.  $\text{Fe}_2\text{O}_3$ ; mol wt 159.70. Fe 69.94%, O 30.06%.  $\alpha$ -Form occurs in nature as the mineral *hematite*.  $\gamma$ -Form occurs in nature as the mineral *maghemite*; prep'd by dehydration of  $\alpha\text{-FeO}(\text{OH})$ : Giovanoli, Brüttsch, *Chimia* 28, 188 (1974). Prepn of a third allomorphic form,  $\epsilon\text{-Fe}_2\text{O}_3$ : Schrader, Büttner, Z. *Anorg. Allgem. Chem.* 320, 220 (1963); Trautmann, Forestier, *Compt. Rend.* 261, 4423 (1965). Color and appearance of  $\text{Fe}_2\text{O}_3$  are dependent upon the size and shape of the particles and the amount of combined water. Preparation and properties: *Gmelin's Iron* (8th ed.) 59, part B, 63-94 (1932); Baudisch, Hartung, *Inorg. Syn.* 1, 185 (1939); *Ullmann's Encyklopädie der Technischen Chemie* vol. 6, 421-423 (1955); Bernal *et al.*, *Clay Miner. Bull.* 4, 15-30 (1959).

Note: The composition of the substance called  $\delta\text{-Fe}_2\text{O}_3$  is actually  $\text{FeO}(\text{OH})$ : Bernal *et al.*, loc. cit.

Caution: Hematite dust causes benign pneumoconiosis: see L. T. Fairbanks, *Industrial Toxicology* (Hafner, New York, 2nd ed., 1969) pp 64-66.

USE: As pigment for rubber, ceramics, glass; in paint for ironing agent for glass, precious metal resistors and semiconductors; in catalyst; colloidal solns as staining agent.

**3974. Ferric Oxide, Saccharated.**  $\text{Fe}_2\text{O}_3$ ; mol wt 159.70. Fe 69.94%, O 30.06%. Prepn: U.S.D. 26th ed, p 266. Soln contg 2% Fe suitable for injection: Kinson, *Lancet* 256, 11 (1949). Brown powder. Sol in water. Solns are unstable in the presence of mix with physiological saline.

THERAP CAT: Hematinic.

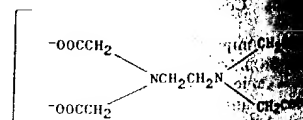
**3975. Ferric Phosphate.**  $\text{FePO}_4$ ; mol wt 171.04. Fe 37.03%, O 42.43%, P 20.54%.  $\text{FePO}_4$  the minerals: *beraunite*, *cacoxenite*, *phosphosiderite*, *strengite*. Prepn: Boule, *Compt. Rend.* 253, 2699 (1887).  $\text{H}_3\text{PO}_4$ : Cate *et al.*, *Soil Sci. Soc. Am. J.* 12, 291 (1918). phosphate rock: Vickery, U.S. pat. 2,914,312 (Inc.); from mill scale and  $\text{H}_3\text{PO}_4$ : Alpat, pat. 3,070,423 (1962 to Chemetron). Dihydrate, white, grayish-white, rhombic or monoclinic crystals. Loses water above 140°. d 2.87. Practically insol in  $\text{HNO}_3$ ; readily sol in  $\text{HCl}$ .

USE: As food and feed supplement; enrichment; as fertilizer.

**3976. Ferric Pyrophosphate.**  $\text{Fe}_2(\text{P}_2\text{O}_7)_3$ ; mol wt 558.04. Fe 29.98%, O 45.09%, P 24.94%.  $\text{Fe}_2(\text{P}_2\text{O}_7)_3$  Lin's, *Iron* (8th ed.) 59, part B, 777 (1932). U.S. pat. 3,014,784 (1962 to American Cyanamid). Nonahydrate, yellowish-white powder in water or acetic acid; sol in mineral acids. USE: As catalyst; in fireproofing of corrosion-preventing pigments.

THERAP CAT: Hematinic.

**3977. Ferric Sodium Edetate.**  $[\text{Fe}(\text{C}_6\text{H}_4\text{N}_2\text{O}_7)_3]^{3-}$  (carboxymethyl)glycinato]](4-)] $^{3-}$  sodium (1-); sodium; sodium [ethylenedinitrilo]tetraacetate (1-); (ethylenedinitrilo)tetraacetate sodium complex; ferric monosodium ethylenediaminetetraacetic acid sodium iron salt; sodium ferredetate; Ferrostrane; Ferrostrane Sodium.  $\text{Na}_3\text{Fe}(\text{C}_6\text{H}_4\text{N}_2\text{O}_7)_3$ ; mol wt 367.07. C 32.72%, H 1.73%, Na 6.26%, O 34.87%. Prepn: McKinnic, *J. Am. Chem. Soc.* 82, 4191 (1960).



Crystals from water + ethanol.

THERAP CAT: Iron source.

**3978. Ferric Sodium Pyrophosphate.**  $\text{Fe}_2(\text{Na}_5\text{P}_2\text{O}_7)_3$ ; mol wt 1037.04. Fe 29.98%, O 45.09%, P 24.94%, Na 1.73%. The commercial product contains 15.6-16.4%  $\text{Fe}_2\text{O}_3$ .

White powder. Bulk density 1.4-1.6. Sol in water. Insol in water.

USE: Food enrichment. Less prone to precipitation than orthophosphates.

**3979. Ferric Subsulfate Solution.**  $\text{Fe}(\text{OH})\text{SO}_4$  soln; Monsel's soln. Approx.  $\text{Fe}(\text{OH})\text{SO}_4$  and  $\text{HNO}_3$ : U.S.D. 25th ed, p 266. Reddish-brown liquid. Almost odorless. Astringent taste. Acid to litmus. Affected by light. Miscible with water, alcohol.